

REMARKS/ARGUMENTS

This case has been carefully reviewed and analyzed in view of the Official Action dated 22 April 2004. Responsive to the comments, objections, and rejections made in that Official Action, the Claims have been amended so as to more clearly define the subject matter which the Applicant considers to be the invention of the subject Application, and to further distinguish the present subject application system from the prior art. No new subject matter has been introduced.

In the Official Action of 22 April 2004, the Examiner objected to the Specification as failing to provide proper antecedent basis for the claimed subject matter. In particular, the Examiner indicated that "...correction is required insofar as the claimed limitation "compulsorily discharging air containing a large amount of solvent externally while injecting air into a working space during electrospinning" lacks proper antecedent basis in the Specification." The Examiner's attention is respectfully drawn to the first full paragraph on page 14 of the Specification, at lines 5 – 13. The section there indicates that "...to remove the solvent volatilized as the polymer solution solidifies by the electrospinning, the working space may be equipped with an air vent for ventilation, or air knives or an air curtain may be provided around the nozzles or orifices or beside the collector, to allow entrance of the air and compulsory discharge of the air containing a large amount of the volatilized solvent through the air vent for more volatilization of the solvent." It seems that the Examiner may have overlooked this section of the Specification, the language of which is incorporated within the claim limitation cited. It thus appears that the cited claim limitation does have antecedent basis within the

Specification. The aspect of the claim limitation regarding compulsory discharge is found at this part of the Specification; the part of the claimed limitation involving the injection of air into a working space during electrospinning is also described on page 14 lines 9 -10: “ the working space is provided with nozzles or orifices ... to allow entrance of air ...”. It is thus believed and respectfully submitted that the Specification actually does provide a proper antecedent basis for the cited claim limitation, thereby traversing the Examiner’s objection.

The Examiner has further rejected Claims 1 – 10 and 12 – 13 under 35 U.S.C. §112, second paragraph, as being indefinite. In particular, the Examiner points out that in Claim 1 the terms “a large amount of solvent” in line 6, and “forming a thin fiber-structured polymer web” in line 8 lack sufficient definiteness to provide a standard for ascertaining the actual limitations and enablement of the present subject Application system. Claim 1 has now been amended so as to incorporate the limitations found within the Specification so as to more distinctly define and claim the subject matter of the present invention. The objected-to adjective “large” has been deleted, and the use of the term “thin” in the present context has been defined as per the Specification (page 14 at lines 14 – 16) to define the thinness of the polymer web as having a range from 1 to 100 microns. Since Claims 2 – 10 and 12 – 13 are dependent upon Claim 1, the amended Claim 1 should now overcome the §112 rejection for that independent claim as well as all the dependent claims that derive from it. It is thus believed that the currently amended set of claims overcomes the Examiner’s 35 U.S.C. § 112 rejections.

The Examiner has further rejected Claims 1, 2, 4, 6, 7, 10, 12, and 13 under 35 U.S.C. §102(b) as being anticipated by Simm et al., U.S. 4,069,026. The Simm reference is said to disclose a method for preparing a thin fiber-structured polymer web that comprises the steps of dissolving a polymer and a suitable solvent, spinning the polymer by electrospinning, venting solvent-saturated air externally while injecting air into the working space, and forming the thin fiber-structured web on a collector. The electrospinning process disclosed by Simm includes, among other things, a requirement that "the voltage between the electrodes is between 50 and 200 kV." (Column 3 at lines 39-40). In its currently amended form, the present invention's claimed method includes the essential step of "spinning the polymer solution by electrospinning *with a maximal voltage of 16 kV*". This current limitation on the methodology for preparing the polymer web of the present subject invention system is not found in Simm. In fact, the Simm reference now actually teaches away from the much lower voltage differences used for electrospinning for the present Subject invention. Insofar as the Simm reference fails to disclose all of the essential elements -- which is to say steps in the claim methodology of the present application system -- Simm does not provide a basis for a 35 U.S.C. §102(b) anticipation rejection.

As regards the Examiner's rejections of the dependent claims on the basis of having been anticipated by Simm, the rejections of claims 2, 4, 6, 7, 10, 12, and 13 must now fail for lack of the essential element recited above, which is incorporated within the dependent claims and which distinguishes the present Subject application sy from the

disclosures of the Simm reference. It is thus believed that the Examiner's rejections based on the 35 U.S.C. § 102(b) have been overcome.

Note is made that the Examiner's rejection of Claim 4 also included a limitation regarding "the relative humidity" that lacks proper antecedent basis within the Claim; this problem has now been cured by the currently worded Amendment overcoming that problem of improper antecedent basis.

The Examiner further rejected Claim 3 as being unpatentable over Simm in view of Fine (U.S. 4,223,101) under 35 U.S.C. § 103(a). Note is made that the method of producing fiber structures disclosed by Fine in the reference cited by the Examiner requires a much higher voltage than the present subject application system. Fine uses an applied voltage "in the range of about 50 to 120 kV (preferably about 90 to 100 kV)" at column 3 lines 3 – 11. Furthermore, the end product of Fine's methodology for producing a 'thin' polymer fiber structure is seen to result in much thicker fiber structures than the present subject application methodology produces. In particular, Fine notes in column 7, lines 46 – 53, that the fibrous polymer structures of his invention are about 0.04 inches and larger. Converting from the English to the metric system for proper comparison, we find that the methodology and invention of Fine lead to a different end product than the present subject application system. Fine's polymer web has a thickness of 254 microns or greater (see table 1 of the Fine reference), in contrast with the disclosed and claimed thickness of 1 to 100 microns of the present subject application process.

It is thus believed that neither the Simm reference nor the Fine reference, whether taken alone or in combination, teaches the essential element of the present subject application system and methodology, namely, that the electrospinning is done with "a maximal voltage of 16 kV." The Fine reference thus uses a different methodology that results in a different end product. Since neither of the two cited references teaches, discloses or suggests the use of electrospinning at voltages of 16 kiloVolts or less, as does the present subject invention, the Examiner's use of these references to form a §102(b) and a §103(a) rejection seems to be overcome. By the same reasoning, the Examiner's rejections of the dependent claims, which incorporate by reference the distinguishing limitations of the currently amended claims, are believed to have been overcome.

It is the Applicant's belief, in view of the foregoing Amendment, Remarks and Arguments, that the present subject Application is now in connection for allowance, and such action is respectfully requested.

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